DOCUMENT RESUME

ED 125 716 JC 760 392

AUTHOR Magidson, Errol M.
TITLE Preparing Individualized Learning Units: A Course Guide.
PUB DATE May 76
NOTE 57p.

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS Bibliographies; Community Colleges; *Course Descriptions; *Individualized Instruction; *Inservice Courses; *Junior Colleges; Study Guides; *Teacher Developed Materials; Teaching Guides; *Units of Study (Subject Fields)

ABSTRACT

This is a guide for a proposed course to teach community college faculty members how to design, prepare, and evaluate an individualized learning unit (ILU). It represents a synthesis of the methods and techniques for developing ILU's that have been reported in the literature and the preferences and opinions of experienced practitioners in the field. At the conclusion of this course, each participant will have prepared an ILU for a specific learning area, prepared criteria for evaluating an ILU, evaluated an ILU other than his/her own, and tested the ILU with a colleague and students. This document includes the course guidelines and objectives, a rationale for the course, a proposed method for evaluating participants' work, a list of the learning resources to be used in the course, and a study guide. The study guide presents a pre-assessment sheet, a suggested instructional sequence, and a set of cognitive objectives for each of the 15 class sessions of the course. There are also suggested classroom activities and suggested readings keyed to each course session. A bibliography is appended. (DC)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED125716

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Preparing Individualized Learning Units

A Course Guide

by

Errol M. Magidson

Kennedy-King College

May 1976

N.B. This guide for a proposed course to teach community college faculty how to prepare individualized learning units was a portion of a Major Applied Research Project (MARP) submitted to Nova University (Ft. Lauderdale, Florida). The page numbers given in the upper right hand corner are those given in the MARP.

JC 760 392

CONTENTS

Page*

INTRODUCTION.....1

OVERALL COURSE GUIDELINES.....4

A. Description.....4

Title...Description...Target Audience
Instructor...Place...Dates & Time
Conference Hours...Credit...Tuition
Class Size

B. Rationale.....6

C. Objectives.....7

D. Evaluation of the Participant's Work.....8

1. Required Assignments.....8

2. Optional Assignments.....9

3. Checkup Quizzes.....10

4. Grading System.....10

E. Absenteeism.....11

F. Primary Learning Resources.....12

1. Textbooks.....12

2. Mediated Learning Resources.....13

3. Scurces of Sample ILU's.....13

G. Personal Data Form.....15

STUDY GUIDE.....17

A. Pre-Assessment of Content.....18

B. Instructional Sequence.....19

C. Sessions 1 through 15.....21

Cognitive Objectives...Learning Resources
Classroom Activities

D. Post-Assessment of Content.....46

COURSE EVALUATION GUIDELINES.....50

REFERENCES.....51

---

* Please note that the page numbers given here and in the upper middle portion of each page of this guide are those used in the original copy.

Preparing Individualized Learning Units: A Course Guide

INTRODUCTION

This guide for a course to teach community college faculty how to prepare individualized learning units (ILU's) is directed particularly to current and potential instructors of instructional design and development. College faculty who have developed ILU's may find it helpful as a resource guide, and administrators interested in having such a course taught at their institution may find it helpful for its suggestions on course objectives, learning resources, design, and format. The sections covering the overall course guidelines and the study guide should be especially helpful to prospective course participants in deciding whether or not such a course would meet their needs and in determining what would be expected of them.

This course guide represents a synthesis of the methods and techniques for developing ILU's that has been reported in the literature and the preferences and opinions of practitioners towards the proposed course. A random sample (200) of the combined memberships of appropriate divisions of the American Educational Research Association and the Association for Educational Communications

and Technology were surveyed for their opinions on the proposed course. The original sample of 200 was reduced to 172 because 26 of the mailed questionnaires were returned "non-forwardable" and because two members of the sample were on "leave-of-absence." Completed questionnaires were received from 130 educators, representing a return rate of 75.6 percent (130/172); however, 53 survey participants were excluded from the study because they had indicated having had little or no experience in individualized instruction. The preferences and opinions of the 77 survey participants who had indicated having had experience in individualized instruction were used.

This course guide was revised on the basis of suggestions offered by a panel of eight experts in individualized instruction, including two who had been nominated by the subjects (Dr. Leslie J. Briggs of Florida State University and Dr. Robert M. Diamond of Syracuse University) and six who were included in a random sample (10) of the 37 subjects who had indicated an interest in reviewing the guide (Dr. Donald E. Brown of Alvin Community College, Dr. Thom L. Cooper of the Center for Educational Innovation, Dr. Ruth E. Frank of Bucks County Community College, Dr. Robert E. Holloway of Syracuse University, Dr. Robert F. Sepe of the University of Alabama, and Dr. Joan E. Thiele of Lamar University).

It was the consensus of the members of this panel that the guide was appropriate and would be useful for teaching

community college faculty how to prepare individualized learning units.

This guide should not be viewed as the only way such guides or courses should be designed. The methods and techniques offered in this guide are suggestions for the proposed course and may be modified to suit the requirements of the faculty and administrators who may use it.

Reviewers are encouraged to write their opinions of this course guide to:

Errol M. Magidson
2951 S. King Dr., Apt. 1718
Chicago, Illinois 60616

OVERALL COURSE GUIDELINES

A. Description

1. Title: Preparing Individualized Learning Units

2. Description: This course teaches the design, preparation and evaluation of self-instructional materials. It emphasizes mastery learning and a systems approach to instructional development. The focus of this course is the development of an individualized learning unit (ILU) by each participant. This ILU usually includes an introduction/rationale, learning objectives, pre- and post-assessment, and learning activities. A draft of the ILU will be revised by the participant on the basis of simulated and actual student tryout. This course also covers a discussion of various concepts and operational models of individualized instruction used at the college level.

3. Target Audience: primarily community college faculty

4. Instructor: preferably an educator with an earned doctorate in instructional design or related field who has had experience in developing ILU's and, if possible, experience in teaching instructional design.

5. Place: preferably at the institution where the participants teach if this is an in-service course.

6. Dates & Time: preferably when it least conflicts with

the schedules of the potential participants. 30 class hours, 15 class sessions, preferably on a weekly basis.

7. Conference Hours: The instructor should be available for consultation on request during the duration of the course and outside of the scheduled class sessions.

8. Credit: If credit can be offered, probably 2 or 3 graduate semester credit hours or the equivalent would be best. This course should count towards merit advancement for the participants. If this course is offered by a community college, perhaps arrangements could be made with a graduate-degree granting university to offer credit.

9. Tuition: Perhaps the community college sponsoring the course would pay any tuition.

10. Class size: The optimal class size for one instructor is about 23. A class of less than 15 participants might suffer because there would be too few participants to share experiences and offer suggestions for ILU topics, improvements, evaluation, etc. A class with more than 30 participants would not permit the instructor to work effectively with each participant.

B. Rationale

There are at least two assumptions which support the development of individualized learning units and their use with our students:

1. Individuals differ in terms of their needs, interests, backgrounds, and learning styles. As educators, we should make attempts to meet these differences.

2. Learning takes place more readily and to a greater extent when the learner is actively involved in the learning process. As educators, we should find additional ways to help the traditionally passive learner take an active role in the learning process.

Many of the characteristics of ILU's contribute to successful learning experiences by our students. The instructional approach and sequence can be tailored to the needs and interests of the students who use them; testing and revision of the units are easily managed to improve student achievement; a wide variety of media can be used; students can work at their own pace, in their own style; and the learning activities can actively involve the students and provide for student interaction.

Your use of the ILU you develop with your students should help improve their achievement on and attitude towards the tasks they are to perform.

Practice in developing an ILU will help you apply mastery learning strategies and a systematic approach to teaching and learning.

C. Objectives

By the conclusion of this course, you should be able to:

1. Describe concepts associated with individualized instruction, such as mastery learning, pre-instructional differences, guided self-reliance, and accountability.

2. Describe at least three models of individualized instruction used at the college level.

3. Prepare a scenario of your proposed individualized learning unit (ILU) in your teaching area.
   a. Select a topic
   b. Describe your target audience
   c. Prepare an introduction/rationale
   d. Prescribe learning objectives
   e. Prescribe prerequisite skills
   f. Prepare test items (pre- and post-assessment)
   g. Prepare a list of learning activities
   h. Prepare a narrative of possible instructional and learning strategies, media to be used, etc.

4. Develop a set of criteria for evaluating an ILU.

5. Evaluate an ILU other than your proposed one.

6. Prepare your ILU.
   a. Prepare an introduction/rationale
   b. Prepare learning objectives
   c. Prepare test items
   d. Prepare learning activities using appropriate media
   e. Prepare questions for unit assessment by students who will try out your ILU

f. Prepare enrichment activities (optional)

7. Developmentally test (try out) your ILU with a colleague and students.

8. Revise your ILU.

9. Prepare a "teacher's guide" for your ILU (optional)

10. Prepare a scenario for another ILU (optional/enrichment)

D. Evaluation of the Participant's Work

1. Required Assignments

The evaluation of your work will be based on your performance on the following assignments:

Assignment	Point Value	Suggested Due Date
1. You will take the Pre-Assessment on page 18 covering Objectives 1 and 2 of this course.		prior to 1st session
2. You will prepare a scenario of your proposed ILU (Objective 3, p. 7). This paper will usually be between 5 and 10 double-spaced, typed pages and should be clearly and neatly presented and grammatically correct.	100	prior to 10th session
3. You will prepare an evaluation of an ILU in your teaching area other than your own according to the criteria you developed (Objectives 4 & 5, p. 7). The criteria selected must be	100	prior to 10th session

Assignment	Point Value	Suggested Due Date
appropriate and comprehensive. This paper should conform to the standards mentioned in Assignment 2.		
4. You will prepare your ILU (Objective 6, p. 7). Whether this is a pencil-and-paper format or a mixed media format, your ILU should be well-organized, clearly and neatly presented, and grammatically correct. The final copy must be one which has undergone revision on the basis of colleague evaluation and student tryout.	300	draft for tryout: 12th session final copy: 14th session
5. You will take the Post-Assessment (p. 46) covering Objectives 1 and 2 of this course unless you have passed the Pre-Assessment. You will be given 1 1/2 hours to complete this.	100	during the 15th session
Total Possible Points:	600	

Please notice that 50 percent of your final evaluation will be determined by the evaluation of your ILU. Together with the scenario (planning stage of the ILU), this represents 67 percent of your final assessment.

2. Optional Assignments

You may complete one or two optional assignments for

which you can receive bonus points as follows:

1. You may prepare a "teacher's guide" on how your ILU should be used with students. This guide of two double-spaced, typed pages may be worth up to 15 bonus points.

2. You may prepare a scenario for another ILU. This additional scenario may be worth up to 25 points.

3. Checkup Quizzes

At the discretion of your instructor, you may be given a series of checkup quizzes on course content, which will serve only as a review and NOT be graded.

4. Grading System

The grading system used will depend upon administrative guidelines and participant preference, if possible. The choice is either the "pass or no-pass" system or the traditional grading system (A, B, C). No participant will be given a "failing" grade. An "Incomplete" or "Withdrawn" grade will be given in the event that a participant does not perform to standard or is unable to fulfill the course objectives. Because many graduate schools do not consider the grade of "C" acceptable, this grade may be dropped in favor of the "Incomplete." In this case, an alternative grade of "Pass" will be the equivalent of the "A" or "B" grades.

To receive an "A," you must fulfill each of the

required objectives at the 85 percent level or above and an overall total of at least 558 points (93 percent).

To receive a "B," you must fulfill each of the objectives at the 80 percent level or above and an overall total of at least 510 points (85 percent).

If a "C" is acceptable, you must fulfill each of the objectives at the 75 percent level or above and an overall total of at least 480 points (80 percent).

Alternatively, a "Pass" will be given any participant completing the requirements for "A" or "B," and possibly for "C."

A participant who receives a score lower than 85 percent of the total possible points for meeting any of the required objectives will be granted additional time to fulfill the objective at that level.

A participant may complete all objectives to standard at any time and thus not be required to attend any class sessions which occur after proficiency is demonstrated.

E. Absenteeism

Class attendance is voluntary except for the first session and for any scheduled individual conference. Class attendance is suggested in order that participants may share educational experiences and ideas for designing, preparing and evaluating ILU's and for critiquing each

other's ILU.

F. Primary Learning Resources

1. Textbooks

There is no one required textbook. Participants are urged to examine five individualized texts on how to develop an ILU. Several copies of each text will be kept on reserve in the library or learning center, and at least one of these should be selected for purchase. Supplementary texts, non-print media, and articles and reprints suggested for this course will also be kept on reserve for study.

Three self-instructional texts on developing ILU's include:

1. Herrscher, Barton, Implementing Individualized Instruction. Houston: ArChem Co., 1971.

2. Johnson, Stuart, and Johnson, Rita, Developing Individualized Instructional Material. New York: Westinghouse Learning Corp., 1970. (Alternatively, their revised edition: Assuring Learning with Self-Instructional Packages. Chapel Hill, North Carolina: Self-Instructional Packages, 1973).

3. Kapfer, Philip, and Ovard, Glen, Preparing and Using Individualized Learning Packages.... Englewood Cliffs, New Jersey: Educational Technology Publications, 1971. (Although the target audience is secondary school teachers, this is an excellent, comprehensive text.)

Another text that would be an excellent choice for those participants who want to develop programmed instruction is: Markle, Susan M., Good Frames and Bad.... Second edition. New York: John Wiley & Sons, 1969.

Participants who have had little background in preparing learning objectives are urged to purchase and read the classic in this area, which is presented in self-instructional format:

Mager, Robert F., Preparing Instructional Objectives. Palo Alto, California: Fearon, 1962.

2. Mediated Learning Resources

Several self-instructional and mediated learning resources which will aid the participant in developing the ILU include the following:

1. General Programmed Teaching, Designing Effective Instruction. Series of 12 individualized units using filmstrips, audio-tapes and workbook. Palo Alto, California: GPT, Commerce Clearinghouse, Inc., 1970.

2. Moore, David M., et al., Preparing Self-Instructional Programs: A Self-Instructional Approach. Slide presentations, audio-tapes and workbook. Dublin, Virginia: New River Community College, 1973. Complete text available from ERIC ED 092 176. (This is an excellent, comprehensive presentation.)

3. Sybouts, Ward, Learning Packages Made Simple. Filmstrip, audio-tape and workbook. Lincoln, Nebraska: University of Nebraska, c. 1973. (This would serve as a concise example of an ILU.)

Two supplementary mediated learning resources include Audio-tutorial System and Systematic Instructional Decision-making.

3. Sources of Sample ILU's

Participants are required to review one commercial or teacher-made ILU which is in their teaching area.

The following are suggested sources where such units can be obtained:

1. Check local libraries or learning centers for programmed instruction and individualized audio-visual materials. Check the card catalog, Books in Print, ERIC's Resources in Education, etc.

2. Sheldon, M. Stephen, and Park, Young, compilers and editors, A Directory of Self-Instructional Materials Used In Community Colleges. Second edition. Los Angeles: UCLA Danforth College Program and ERIC Clearinghouse for Junior Colleges, 1972.

3. Technological Applications Project, Mini-catalog of Instructional Systems and Materials. 8660 Miramar Road, Suite M, San Diego, California 92126.

4. NICEM (National Information Center for Educational Media) Indexes on 16 mm. educational films, 8 mm. motion cartridges, 35 mm. filmstrips, educational records, educational audio-tapes, video-tapes, and overhead transparencies (specify the information you want). Compiled by University of Southern California, Los Angeles 90007 and published by R. R. Bowker, 1180 Avenue of the Americas, New York, N.Y. 10036. Check local libraries for copies.

5. Computer-assisted Instruction. An example of such an index is:

Lyman, E.R., PLATO Curricular Materials, Urbana, Illinois: CERL, University of Illinois, 1976.

Check if local educational institutions are currently using computer-assisted instruction and ask permission to review a lesson in your teaching area.

Note to the instructor: one very useful reference work is:

Thiagarajan, Sivasailam, Semmel, Dorothy, and Semmel, Melvyn, Instructional Development for Training Teachers of Exceptional Children: A Sourcebook. Minneapolis: University of Minnesota, Indiana University, and The Council for Exceptional Children, 1974.

G. Personal Data Form

The participant will complete the Personal Data Form on page 16 to give the instructor information on his background, needs and interests for this course. This form should be completed and sent to the instructor prior to the first session.

Personal Data Form

Name_____ (Mr., Mrs., Ms., Miss)
(last) (first)

Telephone_____
(home) (office)

Address_____

_____

Educational Background

College(s) attended_____Degree____Date____

_____ ____ ____

_____ ____ ____

Undergraduate major_____ minor_____

Graduate area of specialization_____

Number of semester cr. hrs. beyond Masters degree_____

Educational goal_____

Work Experience

Present position_____

Name of college_____

Years of teaching experience_____

Courses currently teaching_____

_____

_____

Reason for taking this course & what you hope to learn

_____

_____

_____

How did you hear about this course?_____

STUDY GUIDE

This Study Guide consists of a pre-assessment, a suggested instructional sequence, and a guide for each session, which includes cognitive objectives and learning resources. There are also suggested classroom activities, which the instructor should decide whether or not to retain in the participants' copies. These activities encourage interaction among the participants and the instructor; the primary learning resources (pp. 11-13), which are self-instructional, encourage individual study.

The cognitive objectives presented here are intentionally broad. The instructor should decide whether or not he prefers more specific objectives, and, if so, he should include them in the appropriate portions of this guide. Affective objectives are included only in the form of questions in the formative and summative course evaluation forms.

The learning resources for a particular session should be examined by the participant BEFORE that session. In most cases, each learning resource is keyed to a particular objective. Some resources have been designated "handouts" and may be included in this Study Guide by the instructor. A complete bibliography is offered on pages 51-54.

Ungraded checkup quizzes may be given by the instructor before and after sessions as appropriate for review purposes. Each primary learning resource has self-study quizzes.

The instructor should establish a friendly, open classroom atmosphere and serve as a learning facilitator.

A. Pre-Assessment of Content

Please indicate the degree of confidence you have in writing at least a 200-word statement on each of the topics listed below, according to the following rating scale:

0 = At a complete loss for words
1 = Able to write on the topic, but would lack confidence
2 = Would feel somewhat secure in writing the statement
3 = Able to write on the topic with great confidence

(Write the appropriate number on the space before each topic)

___ 1. Mastery learning

___ 2. Instructor's accountability for student learning

___ 3. Pre-instructional differences among students

___ 4. Guided self-reliance for students

___ 5. 3 models (programs) of individualized instruction used at the college level (e.g., audio-tutorial system)

___ 6. Hierarchy of learning objectives

___ 7. Norm-referenced testing vs. criterion-referenced

___ 8. Components of a scenario for an individualized learning unit (ILU)

___ 9. Criteria for evaluating an ILU

___ 10. The components of an ILU

___ 11. Techniques used in programmed instruction

___ 12. Developmental testing of an ILU

If you have indicated "3" to at least 10 of the above topics, you may already be an expert in individualized instruction. If you have not yet developed ILU's or want to improve your techniques, this course should still be helpful to you. Your expertise will be welcomed by the

other participants, as well as by the instructor. You may receive up to 100 points for completing the required test (see p. 8) by writing your statements on 5 of those topics you have indicated a "3" which will be selected by your instructor. Please discuss this matter with your instructor.

If you have not answered "3" to at least 10 of the topics in the Pre-Assessment, this course should be most helpful to you. By the conclusion of this course, you should be able to answer "3" to at least 10 of these topics. Please note that this Pre-Assessment covers course content only and is not meant to evaluate your performance on the more important objectives (e.g., preparing your ILU).

B. Instructional Sequence

Page 20 offers a topical outline of the instructional sequence, including the suggested topic and type of classroom activities for each session.

The rationale for this sequence is, first, to give the participants some background in the concepts and operational models of individualized instruction involving the use of ILU's at the college level; second, to give the participants practice in designing their ILU's; third, to help them determine the quality of a unit; fourth, to give them help in preparing the ILU; fifth, to facilitate developmental testing of their ILU's; and sixth, to help them revise their ILU's.

Instructional Sequence

Session	Topic	Classroom Activities
	Pre-Assessment of Content	
1	Introduction & Overview	Small-group work; lecture-discussion
2	Concepts & Models of Individualized Instruction	Audio-visual presentation; discussion; small-group work
3	Preparing a Scenario: Overview	Lecture-discussion
4	Individual Conferences	Consultation; individual work
5	Scenario: Writing Objectives & Test Items	Demonstration; small-group work
6	Scenario: Preparing Learning Activities	Demonstration; small-group work
7	Techniques of Programmed Instruction	Lecture-demonstration; individual work; discussion
8	Evaluating an ILU: Setting Criteria (Formative Course Evaluation)	Small-group work; discussion
9	Workshop: Evaluating an ILU	Workshop: individual work & consultation
10	Individual Conferences	Consultation; individual work
11	Workshop: Preparing an ILU	Workshop: individual work & consultation
12	Developmental Testing of the ILU	Lecture; simulated try-out
13	Workshop: Revising the ILU	Workshop: individual work & consultation
14	Preparing a Teacher's Guide	Small-group work; discussion; workshop
15	Post-Assessment (Summative Course Evaluation)	Individual work

Session 1

Introduction & Overview

Cognitive Objectives

By the end of this session you should be able to:

1. Explain what an ILU is.
2. Write three objectives for this course.
3. Explain the rationale for completing each of the overall course objectives.
4. Explain the significance of the instructional sequence.
5. List at least four reasons for using ILU's.

Learning Resources

1. Overall Course Guidelines
2. Sybouts (c. 1973), p. 8. (Obj. 1)
3. Postlethwait and Russell in Roueche and Herrscher (1973), pp. 24-32. (Obj. 1)
4. Herrscher (1971), pp. 1-9. (Obj. 1)
5. Hilgard and Bower (1974), Chapter 16, pp. 606-638. (Obj. 5)
6. Postlethwait, et al. (1969), Chapter 1, pp. 1-6. (Obj. 5)

Classroom Activities

1. Introductions: (Option A) Divide participants into small groups of four or five. Each group chooses a recorder. Each group member introduces himself to the others; the recorder writes the information. Each recorder introduces the members of his group to the class. The instructor may

join a group or introduce himself.

(Option B) The participants are divided into pairs and asked to write two or three experiences each person enjoyed most as a child. Each participant introduces his partner to the class. The goal is to give the participants an opportunity to become acquainted with each other and to feel more at ease in the class.

2. Course Overview: The instructor introduces the class to the course by discussing what an ILU is and by reviewing the overall course guidelines with the class.

Session 2

Concepts & Models of Individualized Instruction

Cognitive Objectives

By the end of this session you should be able to:

1. Define "mastery learning."
2. Describe the operating procedures for mastery learning.
3. Compare possible advantages and disadvantages of applying mastery learning.
4. Explain what "accountability" is (define, give characteristics, examples).
5. Explain the concept "pre-instructional differences."
6. Explain the concept "guided self-reliance."
7. Describe at least three operational models (programs) of individualized instruction used at the college level (e.g., PSI).

Learning Resources

1. Block (1971), skim Chapters 1, 2, 4 & 5; this text and Roueche and Herrscher (1973) include Benjamin Bloom's classic article "Learning for Mastery." (Objs. 1 & 2)
2. Mueller (1973), pp. 5-10. (Obj. 3)
3. Silberman (1970), "The Failure of Educational Reform," pp. 186-203. (Obj. 3)
4. Alkin (in Roueche & Herrscher, 1973), pp. 194-201. (Obj. 4)
5. Roueche (in Roueche & Herrscher, 1973), pp. 202-210. (Obj.4)
6. Kapfer and Ovard (1971), pp. 7-15. (Obj. 5)
7. Overall Course Guidelines (example of Obj. 6) and Study Guide
8. Moore, et al. (1973), "Formats" and "Definition of Terms," pp. 21-28. (Obj. 7)

9. Postlethwait, et al. (1969) or film Audio-tutorial System (1968) for detailed information on this operational model. (Obj. 7)

10. Rogers (in Weisgerber, 1971), "Current Problems in CAI," Chapter 26, pp. 376-390.

11. Johnson and Sulzer-Azaroff (1975), "PSI for First-time Users," pp. 9-17.

Classroom Activities

1. Class views audio-visual filmstrip on the basics of instructional design (Systematic Instructional Decision-making, 1967) and takes checkup exercises offered by filmstrip.

2. Class discussion of interrelated concepts: mastery learning, pre-instructional differences, accountability, and guided self-reliance. Class may be first divided into small groups, each discussing one of these concepts and then having representative(s) make presentation.

3. Give short lecture on how the ILU applies these concepts.

4. Give lecture with discussion on operational models used at the college level (e.g., programmed instruction, audio-tutorial system (AT), personalized system of instruction (PSI), computer-assisted instruction (CAI), and individually prescribed instruction (IPI).

Session 3

Preparing a Scenario: Overview

Cognitive Objectives

By the end of this session you should be able to:

1. Describe a scenario for an ILU.
2. Explain the purpose of preparing a scenario.
3. Identify an appropriate topic for an ILU.
4. Describe your target audience (students who will use your ILU).
5. Prepare an introduction/rationale.
6. Write a list of goals of your proposed ILU.
7. Prescribe prerequisite skills.
8. Prepare a list of contents involved in your topic.

Learning Resources

1. Overall Course Guidelines, p. 6. (Obj. 1)
2. Pipe (1966), "Preparation," pp. 18-32. (Objs. 1-8).
3. Moore, et al. (1973), "Preliminary Decision Stage," Unit II, Section 1. (Objs. 4 & 5)
4. Herrscher (1971), pp. 6-7. (Obj. 6)
5. General Programmed Teaching (1970), "General Goals, Affective Objectives, and Cognitive Objectives," Unit 2. (Obj. 6)
6. Kapfer and Ovard (1971), "ILP 4," pp. 101-137. (Obj. 8)

Classroom Activities

Lecture with discussion on the components of a scenario.

Session 4

Individual Conferences

Cognitive Objectives

By the end of this session you should have:

1. Presented a topic for your proposed ILU.
2. Stated your reasons for choosing this topic.
3. Described the target audience for your ILU.
4. Presented an initial draft of the goals of your ILU.
5. Briefly discussed the primary learning resources you have selected for use in this course.

Learning Resources

1. See resources for previous session and notes taken.
2. Review potential topics you have taught or would like to teach using individualized instruction.
3. Primary learning resources you have selected (pp. 11-14).

Classroom Activities

Instructor meets with each participant for no more than 15 minutes to discuss possible topic for participant's ILU. A participant who believes he is having difficulty may make another appointment to see the instructor. Other participants may work on their scenario. If appointment times are required, participants should be asked to sign up (during Session 3).

Session 5

Scenario: Writing Objectives & Test Items

Cognitive Objectives

By the end of this session you should be able to:

1. Write an objective containing a behavior, condition, and standard.
2. Distinguish among cognitive, affective, and psychomotor objectives.
3. Write at least one cognitive, affective, and psychomotor objective.
4. Distinguish between lower level and higher level objectives.
5. Label objectives according to what specific level they belong on the hierarchy of objectives.
6. Write at least 2 lower level and 2 higher level objectives.
7. Write test items that correspond to the objectives.

Learning Resources

1. Gagné and Briggs (1974), see examples of objectives from various teaching areas (handouts). Note that the hierarchy of objectives (principally terminology) used here is different from that used by Bloom. Compare these.
2. Metfessel in Weisgerber (1971), "Instrumentation of Bloom's and Krathwohl's Taxonomies for the Writing of Educaticnal Objectives," pp. 186-192.
3. Johnson and Johnson (1973), examples of objectives for college courses, pp. 10-11 and 17-18 (handouts).
4. Cohen (1970), skim this text on objectives for college courses.
5. Mager (1962), entire text. (Mager, 1968, for affective objs.)
6. Cohen in Roueche & Herrscher (1973), "Defining Instructional Objectives."
7. Herrscher (1971), pp. 14-18. (Obj. 1-6)
8. Drumheller (1971), pp. 29-53. (Obj. 1-6)
9. Markle (1969), p. 44 (handout on "knowing a concept").

10. General Programmed Teaching (1970), Units 2, 3, 4, & 5.
11. Moore, et al. (1973), "Planning Stage," Unit II, Section 2.
12. Terwilliger (1971), on test development; see appropriate sections.
13. Green (1975), on test development; excellent, easy to read source; see appropriate sections.

Classroom Activities

1. Lecture on essential parts of a scenario; demonstrate examples for each part.
2. Discuss in depth types of objectives (cognitive, affective and psychomotor) with examples of each, having participants identify each type.
3. Discuss taxonomy of educational objectives (compare Gagné & Briggs, 1974, with Bloom, Englehart, et al., 1956) and have participants identify examples of various types (e.g. memory, translation, application, analysis, synthesis, and evaluation for cognitive objectives).
5. Divide participants into groups and have them write their own examples of objectives in their teaching area. Participants in each group discuss their selections. Instructor moves from group to group to act as a facilitator.
6. Demonstrate how test items are written from objectives participants have written.
7. Participant write test items on their own objectives and discuss these in their groups.

Session 6

Scenario: Preparing Learning Activities

Cognitive Objectives

By the end of this session you should be able to:

1. Select a medium and design an appropriate learning activity when given an objective.
2. Design learning activities and select appropriate media for your ILU.
3. Write a narrative which includes possible instructional and learning strategies and media that might be used in your ILU.
4. Prepare your scenario.

Learning Resources

1. Herrscher (1971), pp. 20-23.
2. Russell (1974), p. 73 (handout on "Media Preference Hierarchy").
3. Kemp (1971), pp. 32-36, also in Duane (1973), "Media and Individualized Instruction," Chapter 18, pp. 213-222.
4. Weisgerber (1968), "The Developing Technology of Media," Part IV, pp. 289-504 (skim appropriate articles).
5. Moore, et al. (1973), "Media Formats with Advantages and Limitations," Unit I, Part VII.
6. Wilson and Tosti (1972), Chapter 7, "Selecting the Most Appropriate Display Media," pp. 51-60.
7. Postlethwait, et al. (1969), "Preparation of Tapes, Films, Printed Materials...," pp. 71-77.
8. American Institute of Biological Sciences (1974), particularly useful if you want to use slide or filmstrip media.
9. Moore, et al. (1973), "Design of Presentation," Unit II Section 3.

10. For educational games and simulations, see Heitzman (1974) or Maidment and Bronstein (1973).

Classroom Activities

1. Give demonstration of how to use objectives to select appropriate medium and learning activities. Participants given objectives and asked to do same.

2. Participants are divided into small groups to "brainstorm" on possible activities and media for their own ILU's.

Session 7

Techniques of Programmed Instruction

Cognitive Objectives

By the end of this session you should be able to:

1. Compare three types of programs: linear, branching, and mathetics.
2. Develop your own example of each type of program.
3. Distinguish among copying, prompted and terminal frames.
4. Write at least one prompted and terminal frame.
5. Give an example of a good introductory frame.
6. Describe how frames should be sequenced when given several in scrambled order.
7. Name at least five techniques used by programmed instruction.

Learning Resources

1. Markle (1969), "The Three Basic Principles," Section A, pp. 1-25; see also examples of linear programs, passim.
2. Markle (1969), "The Basic Elements and Operations," pp. 62-130. (Objs. 3 & 4)
3. Mager (1962), view this text as an example of a branching program.
4. Markle (1969), handouts of "mathetics" program, p. 165 ff.
5. Markle (1969), handouts of information on "copying, prompted, and terminal frames," pp. 63, 68, & 77.
6. Markle (1969), "RULEG vs. EGRUL" frame sequence, pp. 138-159.
7. Espich and Williams (1967), another example of programmed instruction format to teach programmed instruction.

Classroom Activities

Instructor gives a short lecture on uses of programmed instruction with demonstration of different types of programs. Instructor should give participants handouts with sample frames and ask them to identify the type of program and frame. Participants should be given an opportunity to write their own frames and to discuss these. The instructor should lead a discussion of frame sequencing with comments on inductive and deductive approaches.

Session 8

Evaluating an ILU: Setting Criteria

Cognitive Objectives

By the end of this session you should be able to:

1. Develop your own list of evaluative criteria and rating method (e.g., "yes-no" checklist, rating scale).
2. Develop an attitudinal questionnaire for those students who will use your ILU.
3. Prepare a paper evaluating an ILU you have examined (see Assignment 3, p. 8).
4. Complete a questionnaire which is a formative evaluation of this course.

Learning Resources

1. Thiagarajan, et al. (1974), handouts of checklists on language review (p. 130), content review (p. 132), effectiveness of instructional materials (p. 133), and feasibility of instructional materials (p. 135). (Objs. 1 & 3).
2. Sample evaluation form (p. 35 of this Study Guide). (Objs. 1 & 3)
3. Herrscher (1971), p. 25. (Objs. 1 & 3)
4. Duane (1973), pp. 174-176. (Objs. 1 & 3)
5. Kapfer and Ovard (1971), pp. 243-249. (Objs. 1 & 3)
6. Thiagarajan, et al. (1974), examples of attitudinal questionnaire formats, p. 140 (handout). (Obj. 2)
7. Johnson and Johnson (1973), some examples of attitudinal test items (handout). (Obj. 2)
8. Moore, et al. (1973), Unit IV, p. 20 (handout).
9. Formative Course Evaluation, p. 36 of this Study Guide).

Classroom Activities

1. The participants should be divided into small groups, each group choosing a chairman and a recorder. Each group develops criteria for evaluating an ILU. The recorder gives the main points of his group to the class. An overall checklist is developed, though each participant may select his own for the assignment. The instructor either uses the class checklist or the one developed by each participant for evaluating ILU's.

2. The participants should be given a sample format of the evaluation they are to do.

3. The participants are to complete and submit the Formative Course Evaluation.

Individualized Learning Unit Evaluation

Title_____ Author_____

"Publication" date_____ Intended audience_____

Curriculum area_____ Reviewer_____

Date of review_____

Please rate how this individualized learning unit measures up to the listed criteria. Use these ratings:

1 = terrible example (completely revise) 4 = good example
2 = poor example, serious weaknesses 5 = model example
3 = fair example, neither good nor bad NA = not applicable

RATING

1. Introduction (gives purpose or rationale; may give instructions for using unit & prerequisites)._____
2. Learning objectives (states what student expected to do upon completion of unit)....._____
3. Pretest (determines if student can perform objectives or meets prerequisites)....._____
4. Learning activities (helps student achieve objectives; learning resources; tasks; media)....._____
5. Posttest (final assessment of student's learning; designed from objectives)....._____
6. Unit assessment (developmental testing; e.g., questionnaire for users)....._____

---

7. Active learner involvement (student frequently called upon to think carefully about or respond to instruction)....._____
8. Feedback & reinforcement (student given info. on progress & on mistakes; practice; praise)....._____
9. Sequencing (ordering of presentation; e.g., simple to complex; review; help)....._____
10. Language & vocabulary (written to student & at student's level of understanding)....._____
11. Variety (provides various formats of questions & answers; various activities & media)....._____
12. Motivation (will interest student)....._____

---

13. Accuracy of content. ....._____
14. Relevancy & appropriateness (to curriculum area)..._____

---

15. Physical appearance (typos? grammar? pleasing?)..._____
16. Accessibility (portable or easily available)....._____
17. Ease of operation (if equipment used)....._____

Overall Quality..._____

SPECIFIC COMMENTS ON THIS UNIT SHOULD BE TYPED ON OTHER SIDE.

Formative Course Evaluation

Course_____ Instructor_____

Date_____

Instructions: Check the answer which best describes your response to each question. Read all choices before answering. Feel free to write comments you have regarding any question.

1. Is this course meeting your expectations? Yes___ No___
   If not, why?_____
   _____
2. Has the subject-matter been sufficiently covered thus far?
   Yes___ No___ If not, please explain:_____
   _____
3. Would you like to have other topics covered on this subject other than the ones covered or to be covered?
   Yes___ No___ If Yes, please list:_____
   _____
4. Has the instructor's presentation been clear?
   __Outstandingly clear __Very clear __Somewhat clear
   __Not very clear __Not at all clear
5. Has the instructor's presentation been interesting?
   __Outstandingly interesting __Very interesting __Somewhat interesting __Not very interesting __Not at all interesting
6. How well does the instructor seem to know the subject?
   __Thoroughly __Very adequately __Somewhat adequately
   __Somewhat inadequately __Very inadequately
7. What tone has the instructor set for this course?
   __Most friendly & open __Very friendly & open __Somewhat friendly & open __Rather unfriendly & closed
   __Most unfriendly

8. How valuable have the primary learning resources been?
__Most valuable __Valuable __Somewhat valuable
__Not very valuable __Total waste

9. List the learning resources that helped you most:_____
_____

10. List the learning resources that helped you least:_____
_____

11. How helpful has the Course Guide been?
__Most helpful __Very helpful __Somewhat helpful
__Not very helpful __Of no help

12. How much individual help were you able to receive from your instructor?_____
_____

13. Was class time used appropriately?
__Always used appropriately __Most of the time used approp.
__Used appropriately __Often wasted __Always a waste

14. What have you liked most about this course?_____
_____
_____
_____

15. What have you liked least about this course?_____
_____
_____
_____

Session 9

Workshop: Evaluating an ILU

Cognitive Objective

By the end of this session you should have at least taken notes on the ILU you chose to evaluate, and you may have been able to begin writing a draft of your evaluation.

Learning Resources

1. Sources of sample ILU's, p. 13 of this Course Guide.
2. Participant's evaluation checklist.
3. Learning resources suggested for the previous session.

Classroom Activities

Participants should work individually on their evaluations while the instructor moves among them to offer assistance.

Session 10

Individual Conferences

Cognitive Objectives

By the end of this session you should have:

1. Received comments on the quality of your scenario and and ILU evaluation.
2. Discussed the scenario and ILU evaluation with your instructor.
3. Received suggestions for improving your proposed ILU.

Learning Resources

1. Review learning resources for the sessions on the scenario.
2. Scenario which has been evaluated and returned prior to this conference.
3. ILU evaluation, if it has been evaluated and returned.

Classroom Activities

The instructor should meet with each participant for no more than 15 minutes to discuss the participant's scenario and evaluation. The instructor should suggest that the participant keep in mind the criteria for evaluating an ILU when he prepares his own. If either paper is not up to standard, the participant should be given an opportunity to improve it. A participant who believes he is having difficulty may make another appointment to see the instructor. Other participants may work on their ILU. If appointment times are required, a sign-up sheet should be made available.

Session 11

Workshop: Preparing the ILU

Cognitive Objectives

By the end of this session you should have:

1. Developed learning activities for your ILU.
2. Refined your introduction/rationale, learning objectives, and tests for your ILU.

Learning Resource

Moore, et al. (1973), "Production Stage," Unit II, Section 4.

Classroom Activities

The participants should work individually on their ILU's while the instructor moves among them to offer assistance.

Session 12

Developmental Testing of the ILU

Cognitive Objectives

By the end of this session you should be able to:

1. Define "developmental testing."
2. Describe the procedures used in developmental testing.
3. Explain the purpose of developmental testing.
4. Perform a simulated tryout of another participant's ILU.
5. Evaluate another participant's ILU using either the criteria he had developed or the criteria the class had suggested.
6. Have real students go through the ILU and give their opinions on an attitudinal questionnaire and take a pretest and a posttest, if applicable (before Session 14).

Learning Resources

1. General Programmed Teaching (1970), "Validation," Unit 15.
2. Moore, et al. (1973), "Revising and Individualizing a Self-Instructional Package," Unit III.
3. Johnson and Johnson (1970), "Refining the Instructional System," Chapter 5, pp. 79-88.

Classroom Activities

The instructor gives a short lecture on developmental testing. Participants are then divided into pairs on the basis of which teaching area they are in (where possible). The participants should go through a rough draft of each other's ILU first as a student might, then as an evaluator. Comments and evaluations are shared between the members of each pair.

Session 13

Workshop: Revising the ILU

Cognitive Objective

By the end of this session you should have made revisions in the student-simulated version of your ILU according to the comments you received and with which you agree.

Learning Resources

1. Fellow participant's comments and evaluation form.
2. Feedback from the instructor.

Classroom Activities

Each participant works on his ILU. The instructor offers consultation and encouragement to each participant.

Session 14

Preparing a Teacher's Guide

Cognitive Objectives

By the end of this session you should be able to:

1. Explain what a "teacher's guide" is.
2. Make a list of sections you believe would be appropriate for inclusion in any teacher's guide.
3. Prepare a teacher's guide for your ILU (optional assignment for bonus points).

Learning Resource

See sample teacher's guide on page 44 of this Study Guide.

Classroom Activities

The participants are divided into small groups to discuss possible formats for teacher's guides in addition to what such guides are and how they might differ. After a class discussion for a suggested format, the participants may begin to prepare a teacher's guide for their ILU's. Alternatively, any participant who prefers to work on his ILU may do so.

Subject-verb Agreement I and II: Teacher's Guide

A. Lesson identification information
   1. Description: subject-verb agreement, parts 1 and 2
   2. Medium: computer-assisted instruction (PLATO System)
   3. Code name: sva1 and sva2
   4. "Publication" date: 5/12/76
   5. Avg. time for student completion: one hour for each part
   6. Level of use: community college first course in English; remedial English; G.E.D.

B. Author information
   1. Name: Errol M. Magidson
   2. Education: A.B. (Indiana), M.A.T. (Antioch), Ed.D. (Nova)
   3. Experience: several years teaching adult basic education, including remedial English; authoring experience on PLATO since September 1971.

C. Lesson content and characteristics
   1. Topics discussed
      a. Part I (sva1)
         1) Introduction
         2) Third person singular
         3) Third person plural
         4) Exceptions to the third person singular
         5) Subjects joined by and
         6) Words that come between subject and verb
         7) Subjects joined by either-or, neither-nor
         8) Either or neither as subject
      b. Part II (sva2)
         1) Sentences begun with here or there
         2) Subjects that are always singular
         3) Subjects that may be singular or plural
         4) Subjects that are units of measurement
   2. Prerequisite skills: sixth-grade reading level; able to identify subjects and verbs in sentences

3. Objectives of lesson

   Upon completion of this lesson, the student should be able to:

   a. Identify subjects that take third person singular verbs (Part I)

   b. Identify subjects that take third person plural verbs (Part I)

   c. Indicate the present or past tense of verbs given in parentheses to make them agree with their subject (particular types of subjects listed in topics for each lesson, Parts I and II)

4. Features of lesson

   a. Pattern of instruction follows rule-example-practice format with emphasis on examples and practice

   b. Student may decide whether or not he needs instruction on basic rules for person and number

   c. Practice exercises include randomly selected sentences (five to 11 in number)

   d. Fairly precise feedback provided; student shown his score on each item in every practice exercise

   e. Student not penalized for spelling mistakes or for using past tense inappropriately, but he must correct these errors (score not affected)

   f. Pretest and posttest of randomly selected sentences are provided covering each topic (12 sentences; student can miss no more than two items, or he is given review of those topics for which he needs help).

   g. After each Part, student allowed to review any topic before taking posttest

   h. Table of contents available to allow student to select any topic for study

D. Lesson evaluation

   1. Feedback from students: very positive

   2. Estimated number of students having used these lessons by: date_____ number_____

   3. Achievement results:

Session 15

Post-Assessment of Content

Cognitive Objectives

By the end of this session you should have:

1. Completed and passed the post-assessment of content.
2. Completed the Summative Course Evaluation.

Learning Resources

1. Once again take the Pre-Assessment of Content on page 18. If you can answer "3" to at least 10 of the topics given there, you are ready for the test. Your instructor will select 5 of the topics listed in the Pre-Assessment of Content for you to write your statement of at least 200 words on each topic.

   Alternatively, you can take a "role-playing" test during this session. A sample test is offered on page 47.

2. Summative Course Evaluation, pp. 48-49.

Classroom Activities

Participants work individually on their tests and Summative Course Evaluation forms. Instructor supervises.

Alternative Post-Assessment

Directions: Select 2 of the following questions. Plan your response carefully. You might want to organize your ideas by jotting notes before you write your response. Write your responses concisely on the paper provided. Make sure you indicate the number of the question to which you are answering before you answer.

1. You are a professor of education at Anywhere Community College and are speaking on the advantages and disadvantages of individualized instruction at a conference on educational innovation. Write a draft of your speech.

2. You are in charge of an all-day workshop for community college faculty on "How to Individualize Using ILU's." Prepare a rationale, objectives, agenda, and evaluation form for the program.

3. You are an editor for the Handy-Dandy Individualized Learning Corporation. Write a letter to prospective lesson developers on what you hope to find in lessons that are submitted to your Corporation.

Summative Course Evaluation

Course_____ Instructor_____

Date_____

Instructions: Check the answer which best describes your response to each question. Read all choices before answering. Feel free to write comments you have regarding any question.

1. Has this course met your expectations? Yes___ No___
   If not, why?_____
   _____
2. Was the subject-matter sufficiently covered? Yes___ No___
   If not, please explain:_____
   _____
3. Have any topics not been covered that you believe should have been? Yes___ No___ If Yes, please list:_____
   _____
4. Has the instructor's presentation been clear?
   __Outstandingly clear __Very clear __Somewhat clear
   __Not very clear __Not at all clear
5. Has the instructor's presentation been interesting?
   __Outstandingly interesting __Very interesting
   __Somewhat interesting __Not very interesting
   __Not at all interesting
6. How well does the instructor seem to know the subject?
   __Thoroughly __Very adequately __Somewhat adequately
   __Somewhat inadequately __Very inadequately
7. What tone has the instructor set for this course?
   __Most friendly & open __Very friendly & open
   __Somewhat friendly & open __Rather unfriendly & closed
   __Most unfriendly & closed

8. How valuable were the primary learning resources?
   __Most valuable __Very valuable __Somewhat valuable
   __Not very valuable __Total waste

9. List the learning resources that helped you most:_____
   _____

10. List the learning resources that helped you least:_____
    _____

11. How helpful was the Course Guide?
    __Most helpful __Very helpful __Somewhat helpful
    __Not very helpful __Of no help

12. How much individual help were you able to receive from your instructor?_____
    _____

13. Was class time used appropriately?
    __Always used appropriately __Most of the time used approp.
    __Used appropriately __Often wasted __Always a waste

14. Will you share your skills in developing ILU's with other faculty? Yes___ No___ Uncertain___

15. Do you think you will develop other ILU's?
    Yes___ No___ Uncertain___

16. Would you recommend this course to a colleague?
    Yes___ No___ Uncertain___

17. How does this course compare to other graduate courses you have taken?
    __One of the best __Above average __Average
    __Below average __One of the worst

18. What did you like most about this course?_____
    _____
    _____

19. What did you like least about this course?_____
    _____
    _____

COURSE EVALUATION GUIDELINES

This course should be evaluated chiefly on the basis of the performance by the participants on their ILU's and on the basis of their attitudes towards the course and instructor. The instructor may want to use the following evaluative criteria (listed in order of importance) to help him revise the course:

1. Participants' performance on the ILU's they develop.

2. Participants' attitudes towards the course and instructor (see Formative Course Evaluation, pp. 36-37, and Summative Course Evaluation, pp. 48-49).

3. Participants' performance on special assignments (scenario and evaluation of another unit).

4. Participants' performance on the test covering content.

5. Critique of the course by experts in instructional design and development (a critique of course materials by colleagues may be helpful).

6. Class dropout rate (this is not necessarily the fault of the instructor or the instruction; perhaps a quick follow-up study would be helpful in determining why various participants failed to complete the course).

REFERENCES

American Institute of Biological Sciences, Developer's Kit. Arlington, Virginia: Project BIOTECH, AIBS, 1974.

Audio-tutorial System. 16 mm. color film, 25 min. Lafayette, Indiana: Purdue University, 1968.

Block, James H., ed., Mastery Learning: Theory and Practice. New York: Holt, Rinehart & Winston, 1971.

Cohen, Arthur M., Objectives for College Courses. Beverly Hills, California: Glencoe Press, 1970.

Drumheller, Sidney J., Handbook of Curriculum Design for Individualized Instruction: A Systems Approach. Englewood Cliffs, New Jersey: Educational Technology Publications, 1971.

Duane, James E., ed., Individualized Instruction: Programs and Materials. Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

Espich, James, and Williams, Bill, Developing Programmed Instructional Materials. Palo Alto, California: Fearon, 1967.

Gagné, Robert M., and Briggs, Leslie J., Principles of Instructional Design. New York: Holt, Rinehart & Winston, 1974.

General Programmed Teaching, Designing Effective Instruction. Filmstrips, audio-tapes, & workbook. Palo Alto, California: GPT, Commerce Clearinghouse, Inc., 1970.

Green, John A., Teacher-made Tests. 2nd ed. New York: Harper & Row, 1975.

Hammond, Allen L., "PLATO and TICCIT: CAI in Action." College & University Business, October 1972, 53, 39-42.

Heitzmann, William Ray, Educational Games and Simulations. Washington, D.C.: National Education Association, 1974.

Herrscher, Barton R., Implementing Individualized Instruction. Houston: ArChem Co., 1971.

Hilgard, Ernest R., and Bower, Gordon H., Theories of Learning. 4th ed. Englewood Cliffs, New Jersey: Prentice-Hall, 1974.

Johnson, Kent R., and Sulzer-Azaroff, Beth, "PSI for First-time Users: Pleasures and Pitfalls." Educational Technology, November 1975, 15, 9-17.

Johnson, Rita, and Johnson, Stuart, Assuring Learning with Self-Instructional Packages. Chapel Hill, North Carolina: Self-Instructional Packages, 1973.

Johnson, Stuart, and Johnson, Rita, Developing Individualized Instructional Material. New York: Westinghouse Learning Corp., 1970.

Kapfer, Philip G., and Ovard, Glen F., Preparing and Using Individualized Learning Packages for Ungraded, Continous Progress Education. Englewood Cliffs, New Jersey: Educational Technology Publications, 1971.

Kemp, Jerrold, "Which Medium?" Audiovisual Instruction, December 1971, 16, 32-36.

Lyman, E. R., PLATO Curricular Materials. Urbana, Illinois: CERL, University of Illinois, 1976.

Mager, Robert F., Developing Attitude Toward Learning. Palo Alto, California: Fearon, 1968.

Mager, Robert F., Preparing Instructional Objectives. Palo Alto, California: Fearon, 1968.

Maidment, Robert, and Bronstein, Russell H., Simulation Games: Design and Implementation. Columbus, Ohio: Charles E. Merrill, 1973.

Markle, Susan M., Good Frames and Bad: A Grammar of Frame Writing. 2nd. ed. New York: Holt, Rinehart & Winston, 1969.

Moore, David M., et al., Preparing Self-Instructional Programs: A Self-Instructional Approach. Slide presentation, video-cassettes, & workbook. Dublin, Virginia: New River Community College, 1973. Complete text available from ERIC ED 092 176.

Mueller, Daniel J., "The Mastery Model and Some Alternative Models of Classroom Instruction and Evaluation: An Analysis." Educational Technology. May 1973, 13, 5-10.

NICEM (National Information Center for Educational Media) Indexes on 16 mm. educational films, 8 mm. motion cartridges, 35 mm. filmstrips, educational records, educational audio-tapes, video-tapes, and overhead transparencies. New York: R. R. Bowker.

Pipe, Peter, Practical Programming. New York: Holt, Rinehart & Winston, 1966.

Postlethwait, S. N., Novak, J., and Murray, H. T., The Audio-Tutorial Approach to Learning. 2nd. ed. Minneapolis, Minnesota: Burgess, 1969.

Roueche, John E., and Herrscher, Barton R., eds., Toward Instructional Accountability: A Practical Guide to Educational Change. Palo Alto, California: Westinghouse Learning Press, 1973.

Russell, James D., Modular Instruction: A Guide to the Design, Selection, Utilization, and Evaluation of Modular Materials. Minneapolis, Minnesota: Burgess, 1974.

Sheldon, M. Stephen, and Park, Young, compilers & eds., A Directory of Self-Instructional Materials Used in Community Colleges. 2nd. ed. Los Angeles: UCLA Danforth Junior College Program & ERIC Clearinghouse for Junior Colleges, 1972.

Silberman, Charles E., Crisis in the Classroom. New York: Vintage Books, Random House, 1970.

Sybouts, Ward, Learning Packages Made Simple. Filmstrip, audio-tape & workbook. Lincoln, Nebraska: University of Nebraska, c. 1973.

Systematic Instructional Decision-making. Filmstrip, audio-tape & worksheet. Los Angeles: VIMCET Associates, 1967.

Technological Applications Project, Mini-catalog of Instructional Systems and Materials. San Diego, California: TAP, 1975.

Terwilliger, James S., Assigning Grades to Students. Glenview, Illinois: Scott, Foresman & Co., 1971.

Thiagarajan, Sivasailan, Semmel, Dorothy S., and Semmel, Melvyn I., Instructional Development for Training Teachers of Exceptional Children: A Sourcebook. Minneapolis, Minnesota: University of Minnesota, Indiana University, and The Council for Exceptional Children, 1974.

Weisgerber, Robert A., ed., Instructional Process and Media Innovation. Chicago: Rand McNally & Co., 1968.

Weisgerber, Robert A., ed., Perspectives in Individualized Learning. Itasca, Illinois: F. E. Peacock, 1971.

Wilson, S. R., and Tosti, D. T., Learning Is Getting Easier. San Rafael, California: Individualized Learning Systems, 1972.

UNIVERSITY OF CALIF.
LOS ANGELES

AUG 20 1976

CLEARINGHOUSE FOR
JUNIOR COLLEGES